REMARKS

In the Office Action dated August 20, 2003, claims 1, 3-17 and 36-40 are pending in the application. All pending claims stand rejected. The action is non-final. Applicant herein amends Claims 1,4-10, 12-14, 16 and 40 and adds new Claim 46.

Claims 1, 3-11, 13-17, 36 and 40 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the Bernal rotary die module (reference AS from applicant's May 23, 2001 information disclosure statement) (hereafter the "Bernal AS reference") in view of U.S. Patent No. 4,795,247 to Bell et al. In the Office Action and the accompanying photograph therein with handwritten numbers, the Examiner contends that the Bernal AS reference includes four detachable columns (1), one cover (2), two cross members (3), a base (4), a spacer (5), a lower rotary die (6), and an upper rotary die (7). The Examiner further identifies that both die rolls have journals encased in bearing blocks (9) and have raised flanges (not numbered) and the frame includes a pressure member (8). The Examiner further contends that the Bernal AS reference cross members and base include a die support.

The Examiner cites the '247 Bell patent for the proposition that it is well known for rotary die frame cross members to have upper die supports in the form of two circumferentially spaced rotary bearings (114), and for rotary die bases to have a lower die support (106) having rotary bearings (108).

The Examiner concludes that it would have been obvious to modify the Bernal AS reference by first, taking the Bernal AS reference cross members (3) and replacing, or adding to them, the Bell spaced rotary bearings (114) and second, to mount the Bell lower die support (106) and asserted rotary bearings (108) to the Bernal AS reference base. The Examiner further

asserts that it is obvious that the Bell lower die support (106) could either be replaced by, or could be modified to include, the Bell rotary spaced bearings (114) to more accurately support the die and that it would be obvious for the modification to be applied to the Bernal AS reference design.

Applicant respectfully traverses the application of the Bernal AS reference and the '247 Bell patent for several reasons. Both the Bernal AS reference and the Bell patent do not teach a rotary die frame and support system for the die rolls as claimed in the present invention. Both the Bernal AS reference and '247 Bell patent frames are designed exclusively for use with precision rotary bearing blocks (9) and (52), respectively, that are positioned and confined in precision machined side plates or uprights having slots to receive and confine the bearing blocks. See Bernal AS reference photograph, '247 Bell col. 3 ll. 45-6. It is these required bearing blocks and direct engagement with the side frames or uprights that support and confine the prior art die rolls to permit rotation of the die rolls through engagement with journals on both ends of the dies. Bell further uses a lower support roller (106) to complement support of the die rolls and to prevent deflection across the axial length of the rolls under vertical pressure. Notably, Bell's lower support roller (106) also requires "precision bearing assemblies 112 [sic] mounted in the upright 34 of the stand." Bell col. 4 ll. 28-34.

Applicant's rotary die frame is not so limited, but is modular to accommodate both cylindrical bearing blocks (Fig. 7) or angularly spaced rotary bearings (Fig. 1) to support the die rolls. In either embodiment, the die supports do not require heavy, machined side plates having precision slots to enlarge and confine the die supports.

Claims 1, 3, 7-8, 10-11, 17, and 36 are allowable as neither the Bernal AS reference nor Bell discloses the first (lower) modular die support being mounted directly to the base or in separate and spaced relation to the columns as claimed. The dies of the Bernal AS reference rely on bearing blocks (9) journaled with the dies and mounted in precision machined side frames (1) to support and permit rotation of the dies. The Bernal AS bearing blocks (9) are mounted in precision slots confined on all four sides by the uprights, spacer and cross member. There is no teaching, suggestion or motivation to: (1) physically incorporate in Bernal the Bell (112) bearing assemblies to engage the die roll bearers or add them to the cross members, (2) physically incorporate in Bernal the Bell lower roller (106), or (3) modify the Bell (106) roller and mount it to the Bernal AS base.

Claims 4-6 and 14-15 are allowable as neither the Bernal AS reference nor Bell reference discloses the raised radial flange which limits linear translation along the axes of rotation of the upper and lower dies as claimed. Although raised flanges can be seen on the upper die roll in the Bernal AS and Bell references, these flanges function merely as bearers as described in Bell to rollingly engage one another. The Bernal AS reference and Bell die rolls maintain a linear position along the respective axis of rotation through use of the cylindrical bearing blocks (9)and (52) respectively. The Bell reference provides for linear, longitudinal adjustability along the axis of rotation of each roll to selectively vary the vertical distance or spacing between the die rolls through the tapered die rolls. Bell col. 3 ll. 45-68, col. 4 ll. 1-19. The raised radial flange of the present invention is not taught or suggested by the bearers of the Bernal AS and Bell references.

Claims 9, 16 and 40 claim a preferred embodiment wherein each die support includes at least two parallel rollers angularly spaced from one another (Figs. 1 and 2). As

explained above, the Bernal AS reference uses precision cylindrical bearing blocks (9) mounted in the precision machined side frames to support and engage the die roll journals. The Bell reference equally requires use of complex, cylindrical bearings (52) in bearing housings to support and permit rotation of the dies. Bell col. 3 ll. 45-57. Bell uses a pair of bearing assemblies (112) with cylindrical rollers (114) to apply only vertical pressure through annular bearers (26, 28, 108) to compress the stack of rolls. Bell further uses a full length lower roller (106) mounted in precision cylindrical bearing blocks positioned in the side frame to support the die roll. Bell col. 4 ll. 28-34.

There is no teaching, suggestion or motivation to modify the Bernal AS reference to: Add Bell's spaced rotary bearings (114) to Bernal's cross members (3), to import Bell's lower roller (106) into the Bernal AS reference base (4), or to replace the imported Bell lower roller (106) with Bell's spaced bearings (114) as suggested by the Examiner. With respect to modifying the Bernal AS cross members, the Bernal AS reference (and Bell) use cylindrical bearing blocks (9) engaged with the die journals. Bernal AS cross members (3) are simply used to apply downward force on the cylindrical bearing blocks (9), not the die rolls or journals directly. Either adding Bell's (112) assembly to the Bernal AS cross members, or replacing the Bernal AS bearing blocks (9) with Bell assemblies (112), (114) altogether, is improper substitution of components in the absence of motivation to do so. The absence of Bell assemblies (112) in the Bernal AS reference teaches away from such physical incorporation. In addition, removal of the Bernal AS bearing blocks (9) and substitution of bearing assemblies (114) would render the Bernal AS reference inoperable as no structural means exists to limit linear translation of the dies along the rotational axes.

The Examiner's second and third contentions of importing the Bell lower roller (106) into the Bernal AS base (4) and further modifying Bell roller (106) to include Bell bearings (114) are respectfully viewed as improper and unworkable with the Bernal AS reference for the same reasons. Neither reference teaches nor suggests the examiner's modifications and the suggested combination fails to teach or suggest the claimed invention as a whole required by §103(a).

Claim 13 is allowable as neither the Bernal AS reference nor Bell teaches the elongate rods as claimed and described. The cited references include heavy, precision machined side plates. As indicated above, neither cited reference, alone or in combination, discloses the die supports mounted to the base or to the cross members in spaced relation to the columns or the use of the angularly spaced rollers to support the die roll as claimed. Applicant reasserts the explanation detailed above that no teaching, suggestion or motivation exists to combine the cited references and that such modifications would render the Bernal AS reference inoperable.

Claim 40 is not rendered obvious over the cited reference of record as the references do not teach or suggest die supports with angularly spaced rollers attached to the base and cross members in spaced relation to the columns as claimed. See explanation for claims 9, 16 and 40 above.

Claims 12 and 37-39 are rejected under 35 U.S.C. § 103(a) over the Bernal AS reference in view of Bell and further in view of U.S Patent No. 4,155,240 to Okuda et al.

The Examiner contends that it is well known for rotary dies to be vertically adjustable on columns that are cylindrical and of uniform cross section. The Examiner concludes that it would have been obvious to have employed cylindrical columns to the Bernal AS reference

and Bell references as they are recognized equivalents under M.P.E.P. § 2144.06.

As argued by applicant in the 37 C.F.R. § 1.116 after final amendment, supported by the prior William Cox Declaration, considered under the present RCE, applicant asserts that Okuda teaches a device for releasing and connecting drive spindles (1a, 1b) to die rolls (8a, 8b). The Okuda device has a moving structural frame (17). The subject circular posts (13) are positioned within the frame and simply serve as guides within the movable frame structure (17) to vertically guide the drive spindles (1a, 1b) to accommodate the distance between journals of the die rolls. Okuda's coupling device for connecting the drive spindles between a pinion stand and die rolls is not a modular rotary die frame or structure supporting and confining the die rolls, but is merely an attachment to the rolls as part of the rotary drive mechanism. Okuda's use of vertical posts are simply vertical guides for the spindles.

The rejection is respectively traversed on several bases. As indicated above, the Bernal AS and '247 Bell rotary die frames are specifically designed, and are required to have, heavy, precision machined side plates for acceptance and engagement of precision rotary bearing blocks to directly engage and support the die roll journals. These heavy machined side plates have been eliminated by the present invention. There is no teaching, suggestion or motivation to replace the machined side plates or uprights in the cited references with the cylindrical guides of Okuda. For example, the '247 Bell reference's principal teaching is to avoid having to vertically reposition the dies with respect to one another in the frame to change the vertical distance between the die roll cutting surfaces through the tapered die rolls. A principal object of Bell was to permit linear movement of the dies along the axes of rotation with respect to one another to vary the vertical distance between the cutting surfaces. Col. 1 ll. 61-67. The Examiner's

suggested modification of Bernal to add Okuda's guide posts for vertical adjustment of the die rolls is against the stated objectives and teachings of the cited references and therefore, is not an adequate bases for rejection. It is respectively submitted that the Examiner is merely substituting structure from other references into the Bernal AS reference without suggestion or motivation to do so which renders the Bernal AS reference inoperable for its intended purpose.

Applicant's use of columns or rods provides and serves as a structure and frame for the rotary die module itself. Applicant's columns or rods are not used for vertical adjustment of the die rolls as asserted by the Examiner. The relative vertical position of the dies is dictated by the diameter of the dies themselves. In an alternate embodiment, the cylindrical roller bearing blocks and spacers determine the vertical position or spacing of the rotary dies. It is respectfully submitted that the Examiner's showing in the broad die cutting art of the use of uniform cylindrical posts as vertical guides does not meet the burden of showing incentive, motivation and suggestion to combine such teachings to the cited references. As explained above, the Examiner has not cited any prior art showing the use of elongate, uniform columns in a rotary die frame structure or the separate and spaced relationship of the elongate columns to the die supports as claimed.

New claim 46 is not anticipated or rendered obvious alone or in permissible combination by the cited references of record. The Bernal AS device and Bell side plates or uprights require vertical installation and removal of the die rolls by removal of the respective covers.

Lastly, Applicant respectfully submits that the previously submitted William Cox

Declaration was not given its due consideration and weight with respect to the statements regarding the attributes of the present invention, the Okuda reference, the commercial success of the inventive device and other indicia of nonobviousness, specifically paragraphs 1, 4, 6, 7, 10-12 and 14-19 therein. The examiner did not comment on the merits of the statements in issuing the present Office action.

For the reasons stated, it is respectively submitted that this Amendment places all pending claims 1, 3-17, 36-40 and 46 in a condition for allowance, notice of which is respectively requested.

Respectfully submitted,

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